



DEPARTMENT OF THE AIR FORCE  
59TH MEDICAL WING (AETC)  
JOINT BASE SAN ANTONIO - LACKLAND TEXAS



8 MAR 2017

MEMORANDUM FOR SGDTG

ATTN: MAJ JONATHAN P. KRUIZE

FROM: 59 MDW/SGVU

SUBJECT: Professional Presentation Approval

1. Your paper, entitled **Treatment of White Spot Lesions with Icon (Resin Infiltration)** presented at/published to **HINMAN Dental Society, 33 Lenox Pointe NE, Atlanta, GA, 23-25 March 2017** in accordance with MDWI 41-108, has been approved and assigned local file #**17121**.
2. Pertinent biographic information (name of author(s), title, etc.) has been entered into our computer file. Please advise us (by phone or mail) that your presentation was given. At that time, we will need the date (month, day and year) along with the location of your presentation. It is important to update this information so that we can provide quality support for you, your department, and the Medical Center commander. This information is used to document the scholarly activities of our professional staff and students, which is an essential component of Wilford Hall Ambulatory Surgical Center (WHASC) internship and residency programs.
3. Please know that if you are a Graduate Health Sciences Education student and your department has told you they cannot fund your publication, the 59th Clinical Research Division may pay for your basic journal publishing charges (to include costs for tables and black and white photos). We cannot pay for reprints. If you are a 59 MDW staff member, we can forward your request for funds to the designated Wing POC at the Chief Scientist's Office, Ms. Alice Houy, office phone: 210-292-8029; email address: [alice.houy.civ@mail.mil](mailto:alice.houy.civ@mail.mil).
4. Congratulations, and thank you for your efforts and time. Your contributions are vital to the medical mission. We look forward to assisting you in your future publication/presentation efforts.

*Linda Steel-Goodwin*

LINDA STEEL-GOODWIN, Col, USAF, BSC  
Director, Clinical Investigations & Research Support

# PROCESSING OF PROFESSIONAL MEDICAL RESEARCH/TECHNICAL PUBLICATIONS/PRESENTATIONS

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# Treatment of White Spot lesions with Icon (Resin Infiltration)

MAJ JONATHAN KRUIZE

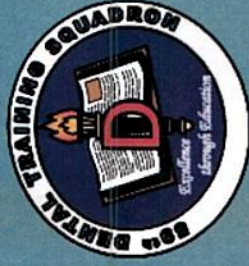
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# White Spot Lesions

- ▶ Until the advent of resin infiltration there has never been a satisfactory solution for treating these white spots
- ▶ Goal → Preservation of healthy tooth structure
- ▶ Esthetic results on smooth surfaces
- ▶ Caries arrest at an early stage
- ▶ Pain free method without anesthesia or invasive drilling

# RESIN INFILTRATION

## Treatment for White Spot Lesions

### ► Icon: Mechanism of Action

- Combines erosion of enamel with resin infiltration
- Modifies enamel optical properties
- Penetrates up to 450  $\mu\text{m}$  to fill pores
- Resin Infiltrant (1.52) has refractive index (RI) similar to healthy enamel (1.65). Air (1.00)
  - Difference in refractive indices between porosities filled with entrapped air and enamel is reduced, eliminating the diffuse light scattering and lesions regain translucency

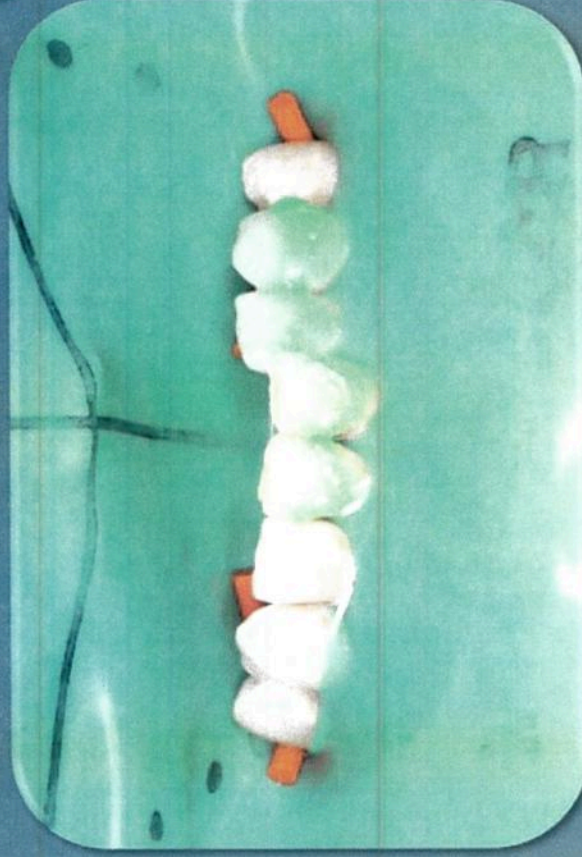
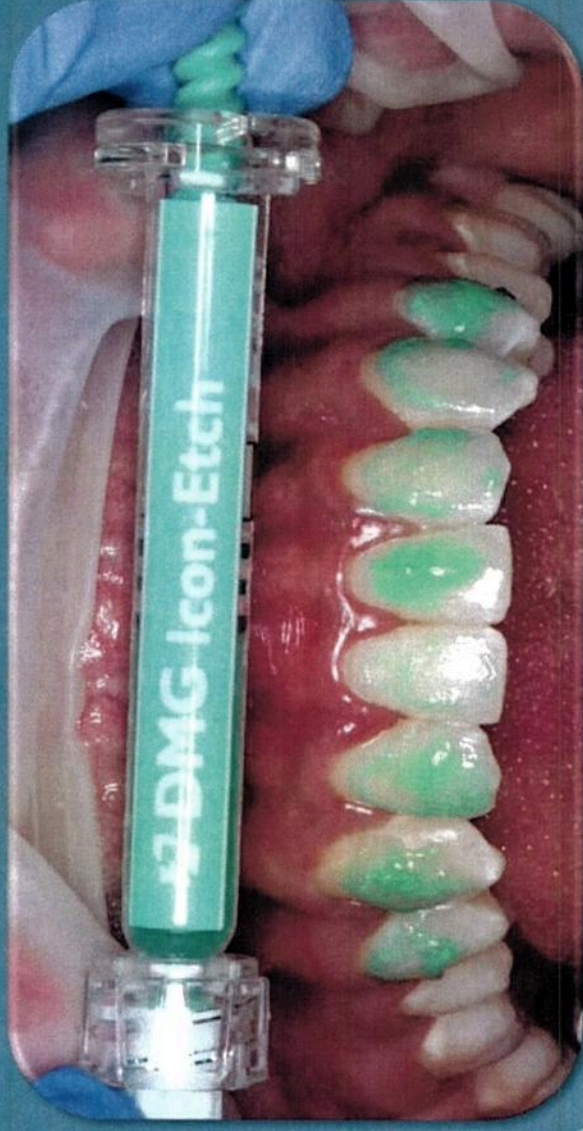
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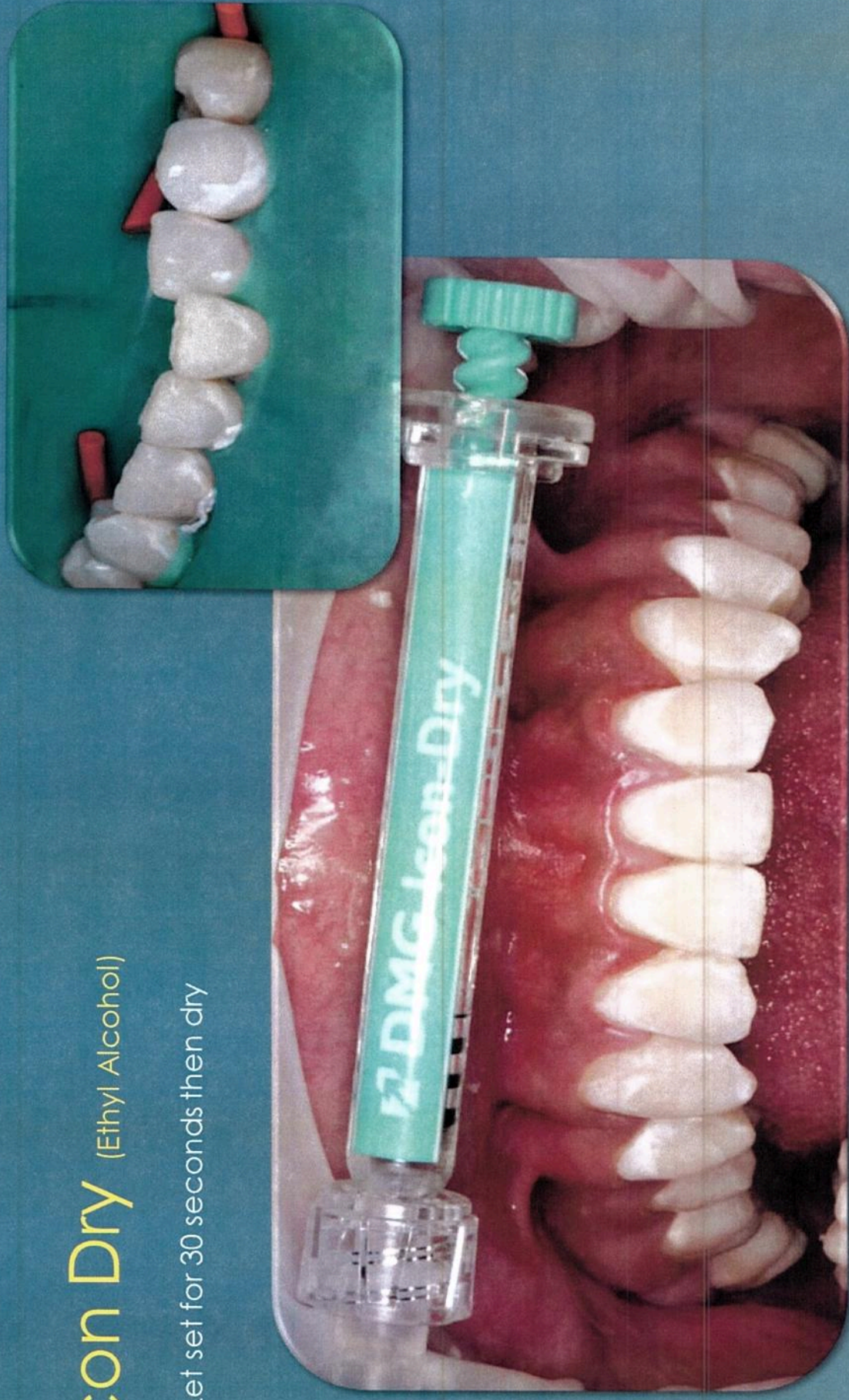
## Icon Etch (15% HCL acid)

- RD, Etch and let sit for 2 min
- Can be etched for up to 3 times
- Etch until lesion is least visible
- Rinse for 30 seconds and dry



# Icon Dry (Ethyl Alcohol)

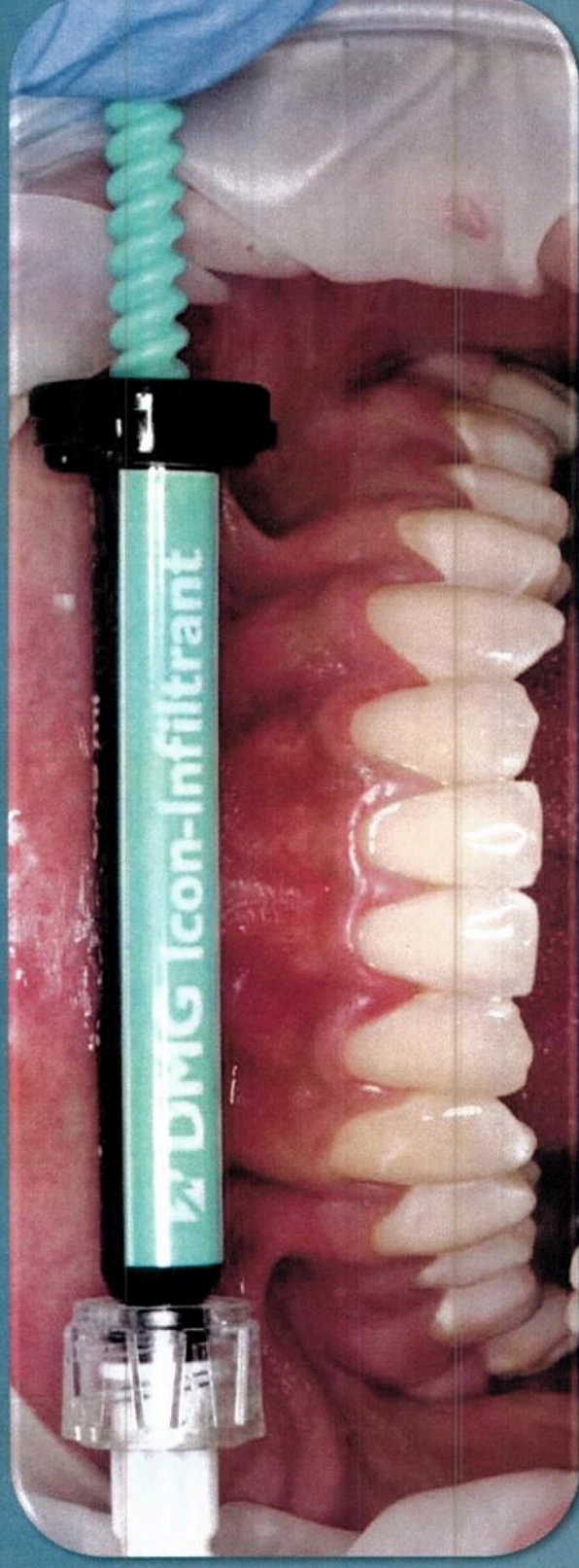
- Let set for 30 seconds then dry



# Icon Infiltration

(Low viscosity resin)

- 3 min set then LC for 40 seconds



# Clinical Photos

Before

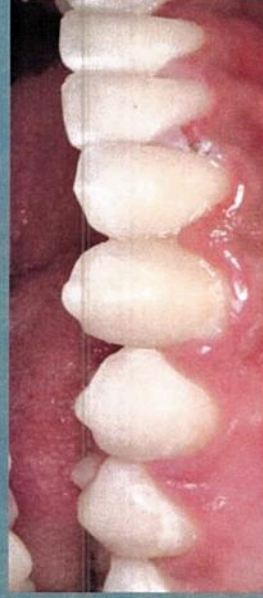
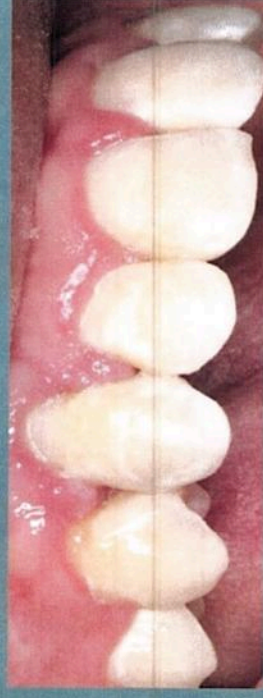


After



# Clinical Photos

After



Before



# Questionable indications and Contraindications

## ▶ Enamel defect lesions, fluorosis and hypoplasia

### ▶ Muñoz et al (2013)

- ▶ The fluorosis stain showed visually perceptual improvements. In the cases of hypoplasia stains were not completely blended. However, general clinical outcomes of these cases were considered successful and recovered the patients' self-esteem.

## ▶ Older white spot lesions > 2 years

### ▶ Paris et al (2007) Resin infiltration of artificial enamel caries lesions.

- ▶ In the case of post-orthodontic WSL's the infiltration treatment should be done as soon as possible after bracket removal, fearing that the lesion at that time is active and tends to progress and would eventually lose its surface integrity thus compromising the ability of the resin infiltrate to access a deeper lesion.

## ▶ Surface cavitation

# Potential issues for Resin Infiltration

- ▶ Research
  - ▶ Studies show that sometimes it just doesn't work in all cases, 50% clinical success. Probably has to do with lesion depth and age of lesion
    - ▶ Kim et al (2011)
  - ▶ Color stability has been shown to be a potential pitfall
  - ▶ Unable to bleach after resin infiltration?

# Final Take home message

- ▶ **Borges, A.B., T.M.F. Caneppele, D. Masterson, L.C. Maia. Is resin infiltration an effective esthetic treatment for enamel development defects and white spot lesions? A systematic review (2016)**
  - ▶ “Is a promising technique for enamel white discoloration camouflage. Previous studies have shown it is a feasible option for color masking of enamel whitish discolorations with favorable short term results. No strong evidence however exists to support the clinical recommendation of the technique. This is due simply to the lack of long-term randomized controlled trials, with a larger sample size and longer follow-up time

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QUESTIONS?